

**FY-2002-2003 PROPOSED SCOPE-OF-WORK for:**  
Operation and Maintenance of the Highline Lake Fish Barrier

**Project #: C-20**

Lead Agency: Colorado Division of Parks and Outdoor Recreation

Submitted by: Chris Foreman, Park Manager (Project Leader)  
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Category:

- ☒ Ongoing project
- ☐ Ongoing-revised project
- ☐ Requested new project
- ☐ Unsolicited proposal

Expected Funding Source:

- Annual funds
- Capital funds
- ☒ Other (O&M, Colorado contribution)

1. Title of Proposal:

Operation and Maintenance of the Highline Lake Fish Barrier

2. Relationship to RIPRAP:

Colorado River Action Plan: Mainstem  
III.B.1.a. Operate and maintain Highline Reservoir net.

III. Study Background/Rationale:

Screening the outlet to Highline Lake, located near Fruita, Colorado, was recommended to reduce or eliminate continuous introduction of nonnative fishes into the Colorado River mainstem from this source. Accordingly, a net-type fish barrier, consisting of 1/4" nominal opening polyester mesh, was constructed in the spillway approach of Highline Lake. The net was installed as an experiment to evaluate the effectiveness of constructing and operating such fish barriers. To establish the effectiveness and potential acceptability of such fish barriers, the Highline Lake fish barrier must be evaluated for: 1) the ability to prevent escapement of those fish sizes that would be large enough to survive with some certainty in Mack Wash and Salt Creek and make it to the Colorado River (Further, we are primarily interested in warmwater fish species that are stocked, namely largemouth bass, bluegill and black crappie). 2) Ease of maintenance and routine cleaning, 3) potential to leave in place during ice cover on lake, and 4) longevity and annual operational costs.

Operation and maintenance of the Highline Lake Fish barrier includes initial net installation (completed), installation (completed) and maintenance of a protective buoy line, annual net cleaning and repair, and annual net removal and re-installation (if

necessary). Operation and maintenance tasks for FY-2002 are described in this scope-of-work. The Colorado Division of Wildlife (CDOW Pat Martinez) is evaluating the effectiveness of the Highline Lake fish barrier in preventing escapement of target fishes as part of a Federal Aid Project.

IV. Study Goals, Objectives, End Product:

Goal/Objective: Operate and maintain the Highline Lake fish barrier and contribute to the evaluation of the effectiveness and feasibility of this type of net barrier to reduce or eliminate nonnative fish escapement.

End Product: Operation and maintenance of the fish barrier for FY-2002 and beyond. Federal Aid progress report on evaluation of the fish barrier net scheduled for 30 August 2001. Federal Aid final report on evaluation of the fish barrier scheduled for December 31, 2002.

3. Study Area: Highline Lake State Park, Loma, Colorado.

4. Study Methods/Approach:

The State of Colorado, Division of Parks and Outdoor Recreation (DPOR) operates Highline Reservoir and proposes to operate the fish barrier for FY 2002-2003.

**Initial net installation:** Completed.

**Protective Buoy Line:** The protective line has been installed and will require only periodic maintenance and repair.

The buoy line that was installed to protect the net is a solid buoy line with large floating signs that state - **Boats Keep Out** (in large letters) - and the line itself has floats along the entire length to protect the net from encroachment by errant boating traffic. The floats and floating signs have a demonstrated life of at least 5 years and will last at least as long as the net will. The cable is plastic covered, and buoy experience would indicate that it would last the minimum 5 year net life. **A boat collision in May of 2001 caused damage to the Boats Keep Out sign (approx. \$100).**

**Net Cleaning and Repair Operations (in water):**

**Weekly visual survey** - Visual survey of the net and buoy line will be conducted on regular weekly intervals to determine the condition of the net and take appropriate action to successfully contain any problems that arise. If the problem is near the surface, attempts will be made to repair with on-site personnel using repair supplies on-site. Should repair become necessary, the problem will be corrected as soon as possible.

**Monthly survey underwater** - Local divers will examine the net for debris, tears, or other maintenance needs. Small net tears will be repaired underwater with supplies on-site. The need for cleaning would be determined. It has been determined that cleaning is necessary prior to the water coming in the canal in late March - this cleaning can consist

of cleaning from the barge using a spray unit of the top 8-12'. Additional cleaning of the top is necessary prior to the fall season when large amounts of water are dumped from the canal and flow through the lake. Cleaning options will continue to be evaluated. Since installation, it has been determined that cleaning the top 6-8' of net is possible by using the barge and winch and cleaning the net with a pressure washer unit without getting in the water. The remaining net will be cleaned underwater using divers and a high pressure cleaning unit.

#### **Annual Net Removal and Re-installation:**

The need to annually remove and re-install the net is still being evaluated. After a successful experiment leaving the net in through the winter, plans are to continue to leave the net in year round.

#### **VII. Task Description and Schedule:**

Operate and maintain the fish barrier as described above.

#### **VIII. FY-2002 Work:**

##### Deliverables/Due Dates:

Operate and maintain the fish barrier as described above. Federal Aid Project final report on evaluation of the fish barrier scheduled for December 31, 2002.

##### Budget estimate:

Weekly visual survey	conducted by on-site staff
Monthly underwater survey	\$4,500
Cleaning of net	\$3,500
Total	\$8,000 <b>Funded by the state of Colorado</b>

##### FY-2003 and Beyond:

**Evaluation of the nets longevity is underway. Test panels will be utilized/lab tests will be utilized to determine when replacement is necessary.**

Procedures/costs for operating and maintaining the net barrier will be determined in the final report.

#### **IX. Budget Summary:**

FY-2002        \$8,000 (Colorado contribution)

FY-2003 and beyond - To be determined.